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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/663,067	09/15/2003	Toru Inuzuka	KANEKO.009AUS	2430

7590 01/31/2006
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EXAMINER

GATES, ERIC ANDREW

ART UNIT	PAPER NUMBER
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3722

DATE MAILED: 01/31/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/663,067	Applicant(s) INUZUKA, TORU	
	Examiner Eric A. Gates	Art Unit 3722	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 November 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This office action is in response to Applicant's amendment filed on 28 November 2005.

Claim Rejections - 35 USC § 103

2. Claims 1- 4, 6-15, and 17-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mori (U.S. Patent 4,325,664) in view of Reed (U.S. Patent 3,586,343) and the Machinery's Handbook (Erik Oberg, et. al., 26th edition). Mori discloses a cutting tool assembly including an arbor 10 with a tapered shank and an annular flange portion (in figure 2, not referenced), and a cutting tool 21 having an unspecified number of blades, which is attached to said arbor through respective contact surfaces by means of a bolt 12. Mori also discloses a set of two protrusions 27 attached to said arbor 10 which fit into two receiving holes 29 on the cutter 21, and which are used to prevent relative rotation of the arbor 10 and cutting tool 21. Mori further discloses a positioning hole 26 on the cutting tool that correlates with a positioning collar 14 on the arbor. Additionally, figure 2 shows a pair of driving slots (not referenced), which do not overlap with the arcuate grooves 29. Mori does not disclose a taper value or size on the arbor, a cutting tool assembly weight, the dimensions of the positioning hole and boss, the axial length of the cutting tool, or the cutting diameter of the face milling cutter, that an inner shape and size of said receiving hole is substantially identical to an outer shape and size of the protrusion, or that said at least one receiving hole consists of three

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receiving holes equally spaced apart from each other in a circumferential direction of said cutting tool assembly.

3. Reed teaches the use of a relative-rotation preventing mechanism comprising three protrusions 40 and 3 holes 41 that are substantially identical in shape and are equally spaced apart from each other in a circumferential direction of a cutting tool assembly 10/11 for the purpose of insuring that driving clutch teeth go together in only one angular position. Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to have combined the cutting tool assembly of Mori with the relative-rotation preventing mechanism of Reed in order to improve the structural rigidity of the cutting tool.

4. It is well known in the art to use an arbor with a tapered shank that has a taper of 7/24 and a size of No. 30, as is taught in Table 2, page 922, of the Machinery's Handbook. Furthermore, it would have been an obvious matter of design choice to make the positioning hole and boss of whatever form or shape was desired or expedient for the purpose of weight reduction of the cutting tool assembly. A change in form or shape is generally recognized as being within the level of ordinary skill in the art, absent any showing of unexpected results. Also, at the time the invention was made, it would have been an obvious matter of design choice to a person of ordinary skill in the art to use a positioning hole and positioning boss inside and outside diameter, respectively, of not smaller than 22 mm and not larger than 27 mm for the purpose of weight reduction of the cutting tool assembly, because such a modification would have involved a mere change in the size of a component. Additionally, it would have been an obvious matter

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of design choice to use a face milling cutter with a cutting diameter of 80-160 mm, and with an axial length of not larger than 40 mm so as to obtain a cutting tool assembly weight not larger than 3 kg, because such a modification would have involved a mere change in the size of a component. A change in size is generally recognized as being within the level of ordinary skill in the art, absent any showing of unexpected results. Therefore it would have been obvious to one having ordinary skill in the art to have modified the arbor of Mori with a spindle of reduced size in order to use a cutting tool normally used on larger spindles, such as a face milling cutter with a cutting diameter of 80-160 mm, and with an axial length of not larger than 40 mm for the purpose of increased rigidity and reduced overall weight, so as to obtain a cutting tool assembly weight not larger than 3 kg. As the modified structure of Mori meets all of the structural requirements of the claims as shown above, there is no evidence that the modified cutting tool assembly of Mori would not meet the size and weight requirements imposed by the claims.

5. Claims 5 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mori in view of Reed and the Machinery's Handbook, and further in view of Hecht (U.S. Patent 6,276,879). The modified cutting tool of Mori discloses the invention substantially as claimed except for the number of blades used on the cutting tool. Hecht discloses the use of cutting heads 1 with three blades and five blades for the purpose of creating a cutting tool that is balanced about the axis of rotation. Therefore it would have been obvious to one having ordinary skill in the art to modify the cutting tool of

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Mori with the number of blades used by Hecht in order to obtain a cutting tool where the number of blades is not larger than six.

Response to Arguments

6. Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection.
7. For the reasons as set forth above, the rejections are maintained.

Conclusion

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eric A. Gates whose telephone number is 571-272-5498. The examiner can normally be reached on Monday-Thursday 7:45-6:15.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Boyer Ashley can be reached on 571-272-4502. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



EAG
26 January 2006



BOYER D. ASHLEY
SUPERVISORY PATENT EXAMINER